

AD-A284 574

CDRL: B018
29 January 1994

UNISYS

**Library Capability Demonstration
Central Archive for Reusable Defense Software
(CARDS)**

Informal Technical Data

DTIC
ELECTE
SEP 16 1994
S B D



Central Archive for Reusable Defense Software

STARS-VC-B018/003/00
29 January 1994

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

DTIC QUALITY INSPECTED 3

94-29950



94 9 15 001

INFORMAL TECHNICAL REPORT
For The
Software Technology for Adaptable, Reliable Systems
(STARS)

Library Capability Demonstration
Central Archive for Reusable Defense Software
(CARDS)

STARS-VC-B018/003/00
29 January 1994

CONTRACT NO. F19628-93-C-0130
Line Item 0002AB

Prepared for:
Electronic Systems Center
Air Force Material Command, USAF
Hanscom AFB, MA 01731-2816

Prepared by:
Electronic Warfare Associates, Inc.
under contract to
Unisys Corporation
12010 Sunrise Valley Drive
Reston, VA 22091

INFORMAL TECHNICAL REPORT
For The
Software Technology for Adaptable, Reliable Systems
(STARS)

Library Capability Demonstration
Central Archive for Reusable Defense Software
(CARDS)

STARS-VC-B018/003/00
29 January 1994

CONTRACT NO. F19628-93-C-0130
Line Item 0002AB

Prepared for:
Electronic Systems Center
Air Force Material Command, USAF
Hanscom AFB, MA 01731-2816

Prepared by:
Electronic Warfare Associates, Inc.
under contract to
Unisys Corporation
12010 Sunrise Valley Drive
Reston, VA 22091

| | |
|----------------------|--|
| Accession For | |
| NTIS GRA&I | <input checked="checked" type="checkbox"/> |
| DTIC TAB | <input type="checkbox"/> |
| Unannounced | <input type="checkbox"/> |
| Justification | |
| By | |
| Distribution | |
| Availability Codes | |
| Dist | Avail and/or Special |
| A-1 | |

Distribution Statement "A"
per DoD Directive 5230.24
Approved for public release, distribution is unlimited.

Copyright 1994, Unisys Corporation, Reston, Virginia
Electronic Warfare Associates, Inc.

Copyright is assigned to the U.S. Government, upon delivery thereto, in accordance with the
DFAR Special Works Clause.

Developed by: Electronic Warfare Associates, Inc. under contract to
Unisys Corporation

This document, developed under the Software Technology for Adaptable, Reliable Systems (STARS) Program, is approved for release under Distribution "A" of the Scientific and Technical Information Program Classification Scheme (DoD Directive 5230.24) unless otherwise indicated. Sponsored by the U.S. Advanced Research Projects Agency (ARPA) under contract F19628-93-C-0130, the STARS Program is supported by the military services with the U.S. Air Force as the executive contracting agent.

Permission to use, copy, modify, and comment on this document for purposes stated under Distribution "A" and without fee is hereby granted, provided that this notice appears in each whole or partial copy. This document retains Contractor indemnification to the Government regarding copyrights pursuant to the above referenced STARS contract. The Government disclaims all responsibility against liability, including costs and expenses for violation of proprietary rights, or copyrights arising out of the creation or use of this document.

In addition, the Government, Unisys, and its subcontractors disclaim all warranties with regard to this document, including all implied warranties of merchantability and fitness, and in no event shall the Government, Unisys, or its subcontractor(s) be liable for any special, indirect or consequential damages or any damages whatsoever resulting from the loss of use, data, or profits, whether in action of contract, negligence of other tortious action, arising in connection with the use or performance of this document.

INFORMAL TECHNICAL REPORT

Library Capability Demonstration

**Central Archive for Reusable Defense Software
(CARDS)**

Principal Author:

Jim Petro

Date

Approvals:

Project Leader

Date

System Architect *Kurt Wallnau*

Date

Program Manager *Lorraine Martin*

Date

(Signatures on File)

Abstract

This is the third library capability demonstration under this contract. Each demonstration provides information about the Central Archive for Reusable Defense Software (CARDS) operational library capabilities.

The goals of this demonstration are to show how CARDS:

- Has simplified access to assets.
- Has captured the Portable, Reusable, Integrated Software Modules (PRISM) Program concepts in the CARDS Command Center Library (CCL).
- Provides access to prototypes of CARDS framework enhancements.

| REPORT DOCUMENTATION PAGE | | | Form Approved OMB No. 0704-0188 | |
|---|---|--|---|---|
| <small>Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.</small> | | | | |
| 1. AGENCY USE ONLY (Leave blank) | | 2. REPORT DATE 29 January 1994 | | 3. REPORT TYPE AND DATES COVERED Informal Technical Report |
| 4. TITLE AND SUBTITLE Library Capability Demonstration (CARDS) | | | 5. FUNDING NUMBERS F19628-93-C-0130 | |
| 6. AUTHOR(S) James J. Petro | | | | |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Unisys Corporation 12010 Sunrise Valley Drive Reston, VA 22091 | | | 8. PERFORMING ORGANIZATION REPORT NUMBER STARS-VC-B018/003/00 | |
| 9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Department of the Air Force ESC/ENS Hanscom AFB, MA 01731-2816 | | | 10. SPONSORING / MONITORING AGENCY REPORT NUMBER B018 | |
| 11. SUPPLEMENTARY NOTES | | | | |
| 12a. DISTRIBUTION / AVAILABILITY STATEMENT Distribution "A" | | | 12b. DISTRIBUTION CODE | |
| 13. ABSTRACT (Maximum 200 words) <p>This is the third library capability demonstration under this contract. Each demonstration provides information about the Central Archive for Reusable Defense Software (CARDS) operational library capabilities.</p> <p>The goals of this demonstration are to show how CARDS:</p> <ul style="list-style-type: none"> • Has simplified access to assets. • Has captured the Portable, Reusable, Integrated Software Modules (PRISM) Program concepts in the CARDS Command Center Library (CCL). • Provides access to prototypes of CARDS framework enhancements. | | | | |
| 14. SUBJECT TERMS Library Capability Demo, PRISM, CARDS | | | 15. NUMBER OF PAGES 27 | |
| | | | 16. PRICE CODE | |
| 17. SECURITY CLASSIFICATION OF REPORT Unclassified | 18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified | 19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified | 20. LIMITATION OF ABSTRACT SAR | |

1.0 OVERVIEW

This document provides the material used to demonstrate the Central Archive for Reusable Defense Software (CARDS) Program's operational library capabilities. The actual demonstration will be given to the Air Force Program Manager on February 10, 1994 during the scheduled Program Management Review.

The goals of this demonstration are to show how the operational CARDS library:

- Has simplified access to assets.
- Has captured the Portable, Reusable, Integrated Software Modules (PRISM) Program concepts in the CARDS Command Center Library (CCL).
- Provides access to prototypes of CARDS framework enhancements.

The demonstration will be presented in two parts:

- A briefing (see Appendix A) of what is to be presented.
- The actual demonstration script (see Appendix B) to show current capabilities.

APPENDIX A - Library Capability Demonstration Slides

The following pages are the slides used to explain the library capability demonstration.



**Central Archive for Reusable
Defense Software
(CARDS)**

Library Capability Demonstration
CDRL: B018
STARS-VC-B018/003/00

10 February 1994

**James J. Petro
EWA, Inc.**



Presentation Overview

- **Goals**
- **Approach**
- **Implementation**
- **Issues**
- **Live Demonstration**



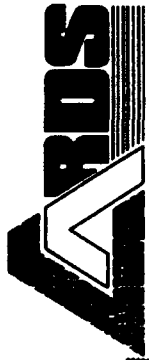
Goals

- Simplify access to CARDS assets.
- Capture PRISM concepts in the CCL.
- Provide access to prototypes of CARDS framework enhancements.



Approach

- **Provide access to CARDS documents outside of the Unix shell interface.**
- **Provide access to multiple libraries.**
- **Provide an explicit view of the PRISM architecture.**
- **Install the component qualification prototype.**



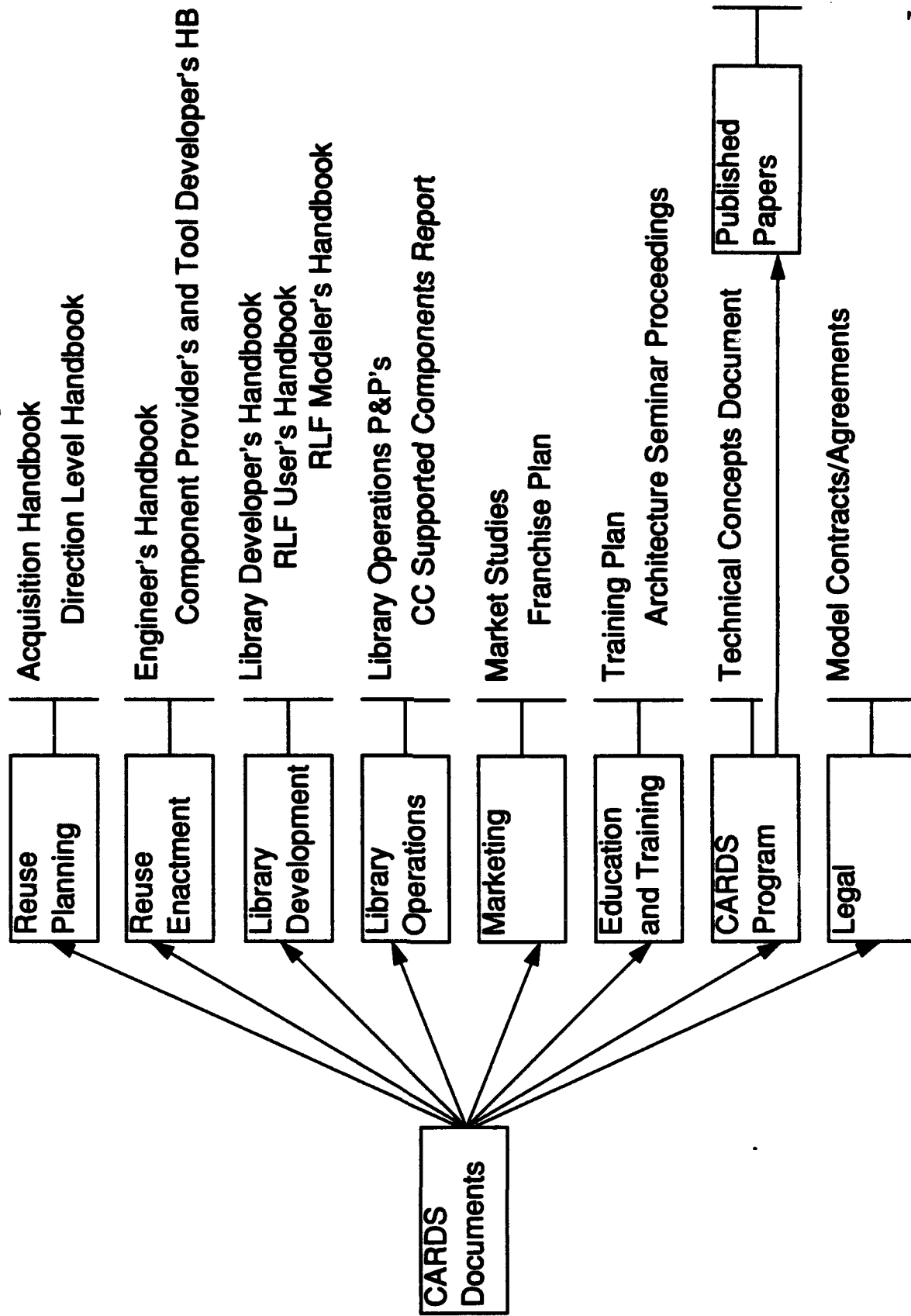
Implementation

Approach: Provide access to CARDS documents outside of the Unix shell interface.

- **Create an RLF model of library-independent documents.**
- **Provide viewing capability of abstracts of each document and descriptions of each category.**
- **Provide extraction capability of all available formats of each document.**



CARDS Documents Library Model

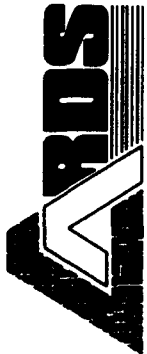




Implementation (Continued)

Approach: Provide access to multiple libraries.

- **Allow the user to choose a library from the launcher interface.**
- **Launcher interface uses configuration file so that libraries can be added/deleted without recompilation.**
- **Other operations associated with chosen library can be configured and executed.**



User Interaction

- User gets menu with all accessible libraries:
 - Currently operational is the CCL and the PDL;
 - The CARDS Document Library will be added.
- User can apply different operations to the selected library:
 - Currently user can enter library, or view a description or release notes for that library;
 - Will add operation to view and extract library dependent documents such as the LMD.

Choose a Library: Command Center v3.2.1

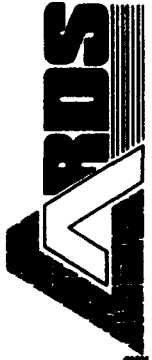
Choose a Command: Enter Library

Ok Quit Help

Choose a Library: PRISM Documentation v1.0

Choose a Command: Enter Library

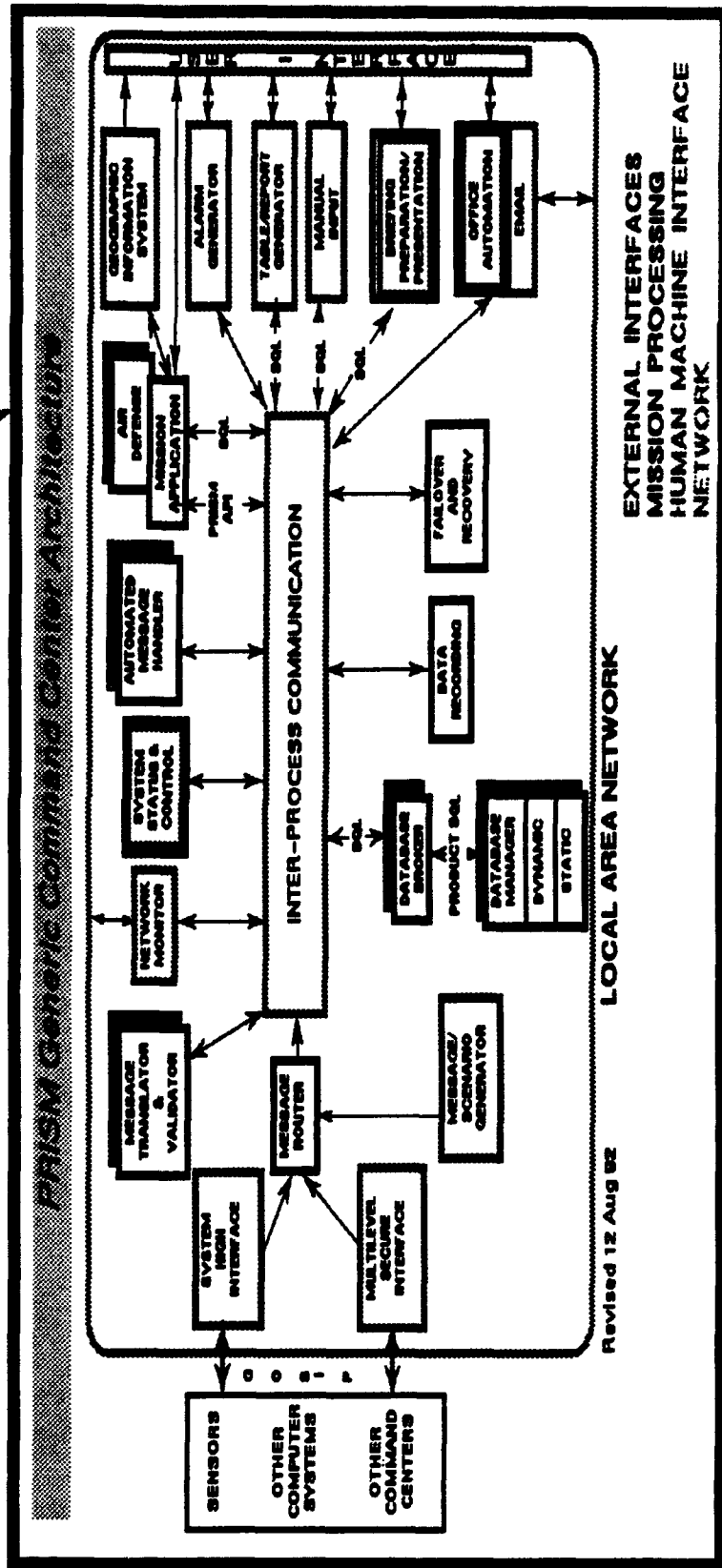
Ok About Library... View Release Notes Help



Implementation (Continued)

Approach: Provide an explicit view of the PRISM architecture.

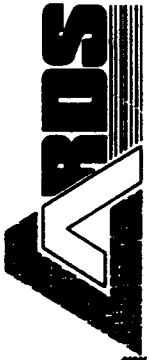
- **Add an architecture node to the library model.**
- **Add the PRISM architecture node to the library model as a subcategory of architecture. (Other architectures can be added at a later time.)**
- **Provide picture of the architecture from the PRISM node.**
- **Connect architecture to component classes.**
 - **PRISM architecture node is modeled with relationship “has component classes”.**
 - **Component class relationship partitioned into separate classes.**
 - **Provides function of each component class in relation to architecture.**
 - **Allows navigation to each component class from architecture node (in aggregation view).**





User Interaction (Continued)

| Category: PRISM Architecture | | Navigate | Related Node |
|------------------------------|---|--|--|
| Navigate | ▷ | | |
| Perform Action | ▷ | Go to a Related Category | |
| Advice | | Go to a Related Node | |
| Suppress | | Go to a Referencing Category | |
| | | Go to a Referencing Node | |
| | | Go to Other Occurrence | |
| | | Center this Category | |
| | | Center this Category in Specialization V | |
| | | | has_DBMS (1..1) |
| | | | has_alarm_generator (1..1) |
| | | | has_automated_message_handler (1..1) |
| | | | has_briefing_system(1..1) |
| | | | has_component_class(15..15) |
| | | | has_database_user_interface(1..1) |
| | | | has_interprocess_communication(1..1) |
| | | | has_journalor(1..1) |
| | | | has_manual_input(1..1) |
| | | | has_message_generator(1..1) |
| | | | has_message_router(1..1) |
| | | | has_message_translator_validator_generator(1..1) |
| | | | has_network_manager(1..1) |
| | | | has_office_automation_sw(1..1) |
| | | | has_system_status_control(1..1) |
| | | | has_translator(1..1) |



Implementation (Continued)

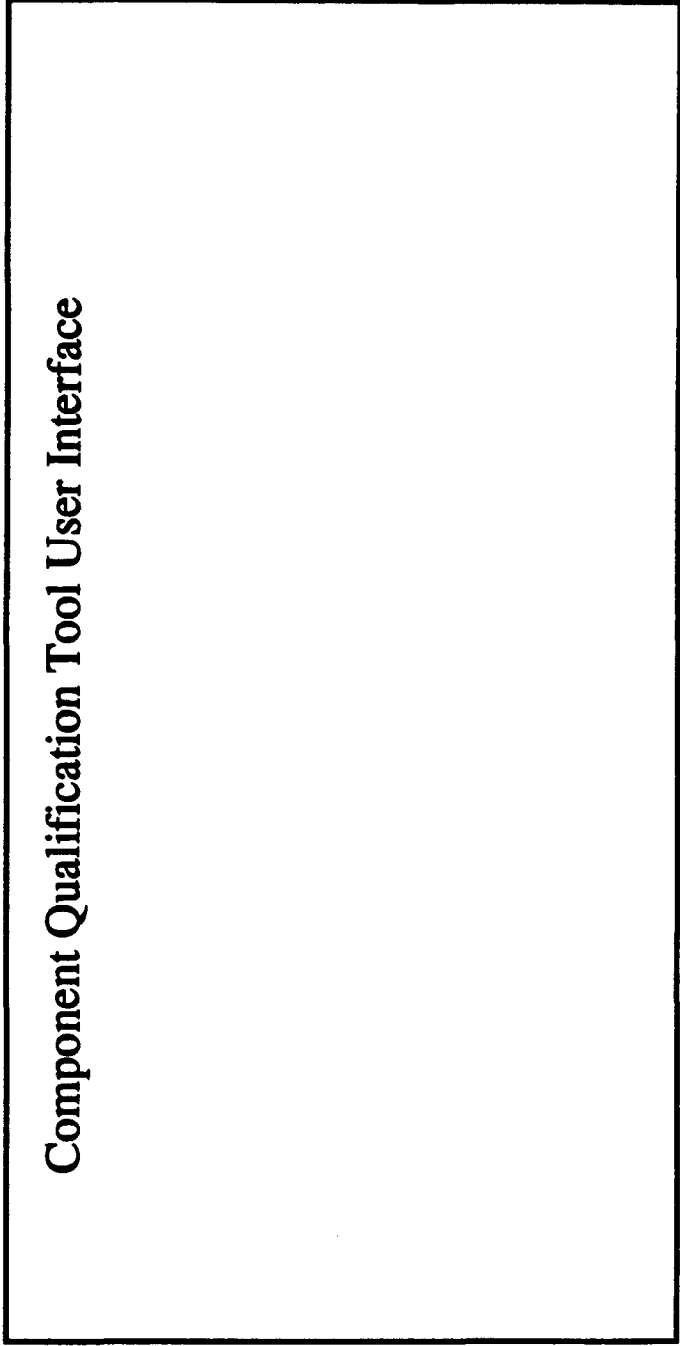
Approach: Install the component qualification prototype.

- **Make model consistent with domain requirements so that some are modeled as critical.**
- **Add component qualification at desktop_publisher and mapping_system.**

User Interaction

| | |
|-----------------------------|---|
| Category: desktop_publisher | |
| Navigate | ▷ |
| Perform Action | |
| Advice | |
| Suppress | |

| |
|---------------------|
| Perform Action |
| Quality Component |
| Provide Description |





Issues

- **No access control between libraries.**
- **The interface is still too slow.**
- **Architecture representation very immature.**
- **Component qualification tool should be added to more nodes.**

APPENDIX B - Library Capability Demonstration Script

The following pages contain the demonstrator's computer script used to demonstrate the CARDS library capabilities.

NOTE: LMB is Left Mouse Button

1. Demonstrate launcher access to multiple services.

> User Action

: Result

*** Text augmentation**

> Type rungb from demo area.

: Launcher will appear.

> Click LMB on box next to "Choose a Library" and hold it down.

: All available libraries will appear.

*** Note that the PRISM Distribution and CARDS Documentation libraries are available as well as the CCL.**

> Click LMB on box next to "Choose a Command".

: All available commands for the current library will show up.

> Select "About Library . . ."

: "About Library . . ." fills the selection box.

> Click LMB on Ok button.

: A description of the currently selected library appears in the File Previewer.

> Pull down File menu from the File Previewer and select Quit.

: File Previewer goes away.

*** Other operations will be added, including viewing of library model documents.**

2. Display the CARDS Documents Library.

> Click LMB on box next to "Choose a Library" and select "CARDS Document Library".

: "CARDS Document Library" fills the selection box.

> Click LMB on box next to "Choose a Command and select "Enter Library".

: "Enter Library" fills the selection box.

> Click LMB on Ok button.

: The "CARDS Document Library" starts up.

> Click LMB on any document category node and select "Perform Action" and then "Provide Description".

:The File Previewer displays a description of that category.

> Pull down File menu from the File Previewer and select Quit.

: File Previewer goes away.

> Click LMB on any document object node (such as Library Development Handbook) and hold on "Perform Action".

: Walking menu displays the actions available.

* The user can extract all available formats of the document, display a text version of the document, or display just the abstract of the document.

> Select "Display Abstract".

: The File Previewer displays a the abstract.

> Pull down File menu from the File Previewer and select Quit.

: File Previewer goes away.

> Click LMB on Quit button and select "Quit Browser Session".

: Yes No dialogue box appears.

> Select "Yes".

: Dialogue box and graphical browser go away.

3. Demonstrate the PRISM Architecture view.

> Bring Launcher forward again, if necessary. Click LMB on box next to "Choose a Library" and select "Command Center v3.3".

: "Command Center v3.3" fills the selection box.

> Click LMB on Ok button.

: The "Command Center v3.3" Library starts up.

* This takes a while.

> Click LMB on "Search" button.

: Search box appears.

> Type in "PRISM_Arch" and select the "OK" button.

: The Search List Selections box appears.

> Select PRISM_Architecture from the list and click the LMB on the "Apply" button.

: The view centers on PRISM_Architecture.

> Click LMB on the PRISM_Architecture node and select "Perform Action" and then "Picture Image".

: The picture of the PRISM Architecture appears.

> Click LMB on the picture.

: The picture goes away.

> Click LMB on the PRISM_Architecture node and select "Display Relationships Graphically"
: An RLF GB appears with the aggregational view from PRISM_Architecture.
* Now we can see how the component classes are connected to the PRISM Architecture.

> (From the relationships view) Click LMB on the PRISM_Architecture node and select "Navigate", walk to "Go to a Related Node" and hold the mouse button.
: The third walking menu appears with all the related nodes.
* These entries include the component classes in the PRISM Architecture (except for has_component_class and has_interprocess_communication).

> Select has_briefing_system from the third menu.
: The view will change to include briefing_system.

> Click LMB on the briefing_system node (not the has_briefing_system node) and select "Navigate" and then select "Center this category in specialization view".
: Specialization view centers that category.

> From the relationships view, click LMB on the "Quit" button and select "Delete Current View".
: Relationships view goes away.
* User can see components which are qualified for the briefing_systems component class.

4. Demonstrate the access to the component qualification tool.

> Click LMB on "Search" button.
: Search box appears.

> Type in "desktop_publisher" and select the "OK" button.
: The Search List Selections box appears.

> Select desktop_publisher from the list and click the LMB on the "Apply" button.
: The view centers on desktop_publisher.

> Click LMB on the desktop_publisher node and select "Display Relationships Graphically"
: An RLF GB appears with the aggregational view from desktop_publisher.
* Point out some of the relationships which are critical, such as "has_spell_checker". These are the relationships which must be filled for a component to be qualified as a desktop publisher.

> Click LMB on desktop_publisher and select "Perform Action" and then "Qualify Component".
: The Component Qualification tool appears.

End of demonstration.